

have no right, on the contrary, to expect, and there is no decided proof that we do find, in wild canines, other than feral dogs, a true bark.

The bark is the language of the domesticated dog, and by it he expresses the various emotions of joy, anger, fear, or suffering; and, as in human language, it must have been the work of ages to develop canine education to the point of a domesticated bark.

As far as Cumming goes, then, there are no proper wild dogs in Africa, but only jackals, hyenas, and lycaons, which may on rare occasions make noises which the vivid imagination of a Cumming might magnify into the bark of a collie.

Taking the word *bark* as we generally understand it, there seems no reason to affirm that wild dogs bark, any more than that wild felines mew; and it must be a very acute sense of hearing that would detect the bark of the dog in the voices of the wolf, fox, and jackal, or the mew of the cat in the growls of the lion and tiger. Though it be a difference of degree and not of kind, it is precisely the degree brought about by domestication alone. Even the half-civilized Esquimaux dog does not bark, his education not having reached that degree of refinement.

Comments were offered by Professors Bowen, Agassiz, Gray, and others.

The subjoined abstract of Mr. J. A. Lowell's remarks belong to a preceding meeting, and should have been introduced on page 410.

Mr. Lowell said that the book recently published by Mr. Darwin on the origin of species had deservedly attracted great attention, both in this country and in Europe. It is written with admirable candor, and rests on an ample and patiently accumulated collection of facts. Had the author, however, confined himself to the subject indicated in his title-page, his work would scarcely have inspired such universal interest. It is because he has unfolded a new theory of creation, that his views are espoused or combated with so much zeal. His facts are apparently, for the most part, uncontroverted; and it is precisely this admission of the facts that takes the inquiry from the exclusive domain of science, and opens it to all who are qualified to examine it merely as a deduction from acknowledged premises. The argument may be summed up in this: —

1. The intervention of man has produced, by careful and continued selection, very remarkable changes in races both of domestic animals and plants.

2. Nature constantly produces varieties. Therefore,

3. Nature, which commands indefinite periods of time, may, by seizing accidental varieties in which some peculiarity appears favorable to the individual in the great struggle for life, so extend and improve this peculiarity as gradually to evolve new and more gifted species.

It was clear that he could not logically stop here, and he does not shrink from the conclusion, that in like manner genera have been evolved from species, orders from genera, and so on, until at last you come back to one original pair, progenitors of all the visible animated creation.

To this reasoning Mr. Lowell objected:—

1. That man acts with means of seclusion that Nature does not possess, and that accordingly varieties always tend to return to the original type, instead of diverging from it.

2. That the changes produced by human agency are all within *specific* limits; that is, that the operation consists in developing certain observed tendencies, and discouraging others; but that there is not the slightest approach towards *generic* changes. The most improved South-down ram, or Ayrshire bull, is but a ram or a bull after all. You cannot, therefore, reason from this analogy, whatever time be assumed, to any changes differing in *kind* from specific changes.

3. The theory rests entirely on the second proposition, that Nature is constantly producing varieties. Mr. Darwin must therefore be held to strict proof of this. The existence of varieties in the animal kingdom is denied by very high authority. As to the vegetable kingdom, so long as botanists took it for granted that all hermaphrodite plants were self-fertilized, every departure from the normal type was of course a variety. But Mr. Darwin has shown by numerous instances that fertilization is constantly occurring by the intervention of insects, who transport to one flower the pollen of another, and that this occurs not only between plants of the same species, but also between those of different species. He even doubts whether any species can be long maintained by self-fertilization alone. Such being the case, it becomes a legitimate subject of inquiry whether all the so-called varieties are not produced by hybridization. We know that, in crossing breeds, one offspring will resemble one parent, one the other, and others have a type

intermediate between the two. May not all the forms which seem to link one species with another be explained on the same principle?

4. The use of the word *accidental* in this connection is not warrantable. For the question will resolve itself at last into a question of design, and the use of this word is therefore a begging of the matter at issue.

5. If geological investigations showed an ascending series, while the lower forms were *extinguished*, there might be some ground for this theory; though even then it might be difficult to conceive why in all cases the intermediate forms were wanting in the great record. But forms of the lowest type are as frequent now as ever; the *Lingula* lives at the present day in perfect harmony with the Clam, which should have superseded it.

6. The word *indefinite*, as applied to time, has no clear meaning to distinguish it from *infinite*. A million or ten millions of years would not be an indefinite period. Now we know some of the properties of the infinite, as in the case of the summation of series; but the idea of infinity itself we cannot grasp, and we have no right to invoke it in the solution of any finite question.

7. Long as are the periods established by geology, the author is obliged to resort to a much longer time to account for the development of such a curious and exquisite organism as that of the eye from a mere nervous thread *accidentally* sensitive to light. For in the earliest stratified rocks the Trilobites are already gifted with complex organs of vision, and that comparatively modern animal, the Ichthyosaurus, has an eye that any reptile at the present day might envy.

8. A yet more serious objection lies against the evidently forced and painful attempt to trace the development of reason from the lower forms of animal instinct. With regard to man, so recent has been his introduction on the earth, that we might reasonably expect to find the intermediate forms which must have existed between him and the anthropoid apes.

9. The whole theory rests on the assumption, that there may be forms more favored and better fitted to succeed in the struggle for life, than those originally created. But is this proved? Observe, that as fast as any species, by this theory, improves, just so fast its enemies must improve also. While Nature avails itself of an accidentally harder proboscis, to enable an insect, now become a borer, to lay its eggs within

the tree, that the young larvæ may avoid destruction, — the bird, meanwhile, is by a like careful selection, acquiring claws fitted to climb, and a beak fitted to pierce the bark, and so has become a woodpecker. After all the prolonged and patient efforts of Nature, through countless ages, the relative numbers remain precisely at the point from which they started.

Finally, if this theory is true, it should be carried much farther. For why stop at the limits of human vision? Why at those of the best microscopes? Why even at those which we may expect the microscope ultimately to attain? Beyond and below these, there may exist myriads of forms, myriads of created organisms, equally entitled, on all principles of reasoning, to claim that they have been formed in the image of that original pair.

Four hundred and eighty-third meeting.

May 8, 1860. — MONTHLY MEETING.

The PRESIDENT in the chair.

Dr. Kneeland, in reference to some criticisms which his communication at the last meeting, upon the barking of dogs, had called forth, remarked, —

That, as regards the testimony adduced, which he said was the same as had been extolled on the other side of the question, he had introduced the testimony of the same hunter-naturalist, and his only, to show that the wild dogs in question were widely different from the common type of dogs, and that their voice could not be fairly compared to the educated bark of domesticated dogs.

As to the occurrence of indigenous wild dogs south of the Equator, he maintained, on the authority of Hamilton Smith and others, that the South American wild dogs are aguara or fox-dogs, and not true dogs; and also, on the authority of many naturalists, that the South Pacific dogs have been introduced from the Asiatic continent by their Polynesian masters; that, according to Dr. Pickering, there is probably no aboriginal dog in New Zealand; that the dogs of the Namaqua region in Southern Africa, on the authority of Anderssen, are half-reclaimed jackals; and that the Australian dingo, an exception to the zoölogical character of that region, on the authority of Dr. Carpenter